

TECHNICAL COMMENT

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HORMESIS IN LEPIDOPTERA?

Hormesis (from the Greek verb to set in motion) has come to mean the stimulating effect of small doses of any substance that in larger doses is inhibitory.

In a recent paper, P. A. Parsons (1989, *Biol. J. Linn. Soc.* 37:183-189) describes experiments in *Drosophila* that show conclusively that, as measured by longevity, acetaldehyde is beneficial at low and lethal at high concentrations. Others have demonstrated the same phenomenon with ethanol, where the reproductive span has also been increased. There has been much discussion about the possible favorable effects of natural background radiation.

I had never heard of hormesis until I read Parson's paper, but having done so, and being medical, I first speculated on therapeutic aspects and in particular on the old saying "A little of what you fancy does you good"—especially with regard to alcohol.

I next came across a paper by W. E. Miller (1989, *J. Lepid. Soc.* 43:167-177) on the effects of honeydew imbibed by adults in enhancing reproductive performance of the spruce budworm, compared with water. There was no mention, however, of the effect of excess honeydew, and hormesis was not referred to.

I wrote to Dr. Miller and he confirmed that a number of alcohols occur in fresh honeydew (Auclair, J. L. 1963, *Ann. Rev. Entomol.* 8:439-490 and refs. cited therein). Miller: "I was certainly intrigued by the possibility that alcohol hormesis is involved in budworm response to imbibed honeydew. Your suggestion brought to mind a couple of things. One, the news story here after the recent London storm in which adult lepidopterans escaped, and then were recaptured at beer, after which they oviposited liberally. Two, the use of rotting fruits as feeding sites by many tropical lepidopterans, and the traditional use of alcohol baits by collectors."

The purpose of this comment is to enquire whether lepidopterists have views or experience concerning hormesis with respect to their specialty (or hobby). If so, they might consider launching experiments to explore further the phenomenon.

The principal difficulty as I see it is to establish the two end-points of the substance in question, and the methodology.

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